Wilhelm
08/820,496

Official

REMARKS

This Supplementary Amendment supplements the Rule 116 Amendment filed June 21, 2003 in response to the final Office Action of January 21, 2003. Since the Action was final, a Request for Continued Examination was filed on June 21, 2003, which requested that the Rule 116 Amendment be considered in connection therewith.

By the present Amendment, the Claims have been amended to recite that the present invention also includes power control for use in a DC load environment, such as for a lighting system maintaining normal lighting conditions by lighting fixtures requiring DC electrical power. An AC connection receives AC electrical power from a grid source and an output connection delivers required voltage regulated DC electrical power to the DC loads, such as the DC lighting fixtures.

As such, the power controller inputs voltage regulated power simultaneously from the primary sources, which, besides AC grid line voltage power, also includes an alternative primary source of DC making a shared contribution of power selected by the power controller.

In addition a power junction means delivers a constant voltage DC to at least one DC compatible load at an output of the power sharing system. The power controller controls supply side power sharing at a DC load side and the power controller produces voltage regulated output power, which affects the response of the alternative primary source of DC power to the load. A converter within the controller converts AC electrical power to DC electrical power. A connection for a battery provides standby DC electrical

power to the load. The battery connection is connected to the converter for maintaining the battery in a desired charged condition, from the power sources.

Applicant also amends Claim 116 drawn to a power control system for use in lighting, in accordance with the present invention.

With respect to the prior art cited in the Final Office Action, Claims 49-54, 56 and 116 were rejected as being obvious, and therefore unpatentable, over U.S. Patent No. 4,731,547 of Alenduff in view of Yamanaka, Drinkwater, Morita and/or Keefe.

However, Alenduff '547 is not used in a DC load environment. Rather, it is used in an AC load environment. Reference numeral "24" is an AC generator, in parallel with the utility network. It has to be AC power to be in parallel with the utility network. Alenduff '547 has a controller which controls AC power device 24, not a DC power source.

In addition, the Examiner asserts that Alenduff '547 has a DC generator at Column 8, lines 35-48, but it is not a DC generator.

In contrast to the prior art, the present invention uses voltage regulated DC power to influence the power from multiple DC power sources.

Alenduff '547 combines AC utility power with a generator in parallel with the AC utility power Alenduff '547 has the ability to track a customer's peak moving average (or variations thereof) algorithmically.

Furthermore, regarding the Examiner's comments about Alenduff '547 having a "memory means 40" needing a backup, this is very different from the "secondary source

of DC" of the present invention, which is sized to back up the major circuit load (such as operational unit 18 in Alenduff '547), and which is not a trivially low requirement, such as the several milliwatt-seconds required by battery back-up for the memory means 40 of Alenduff '547. In addition, the emergency standby generator mentioned, as well as generator 24, in Alenduff '547, are AC line compatible units, not DC line compatible sources.

All of the above has little to do with the need of the restrictive "memory means 40" in Alenduff '547 requiring a battery backup. Alenduff '547 only mentioned this in passing, since it was well known in the art. It is therefore far from being obvious to use Alenduff '547 as modified by the teachings of Yamanaka, Drinkwater, and Morita, to operate peak shaving in a DC environment as in the pending Claims of the present invention.

Also, unlike what the Examiner states, Alenduff '547 does not "require" that the peak shaving source also be an emergency back up as the Examiner states. Alenduff '547 merely states that it could be (see column 8). In fact, the engine/generator 24 in Figure 1 is not an emergency unit, and it is dedicated to the peak shaving task.

Keefe (U.S. Patent No. 4,528,457 describes an inverter 10 (misnamed by the inventor as a "converter") which produces AC power, which is in parallel with AC grid "Y". The DC power source in Keefe '457 is just a source of power to the AC inverter 10. Keefe '457 uses a signal from the AC source to make the inverter switch at same AC

frequency as AC utility grid. A "supply-side" sharing is done at the AC side, not at the DC side, like in the present invention.

Also, in Keefe '457, the utility "Y" and DC-AC power source 10 (using DC power source "X") are used to supply an AC load "L". Thus the suggestiveness of a combined AC/DC system is exactly the reverse of the claimed subject matter of the present invention, whereby AC utility power is converted to DC power, and is combined with other primary and/or secondary DC power sources and is fed to a DC load. Keefe '457 basically discusses a primitive type of DC powered inverter circuit synchronized to AC utility power for sharing an AC load with AC utility power. No peak shaving intent is discussed in Keefe '457.

Drinkwater (U.S. Patent No. 4,818,891) is an energy booster 26 with a "ride-through", for a short time the interval measured in seconds or hours. In contrast, the present invention addresses large power requirements served by multiple sources, using the load voltage as the means for controlling the power from the multiple sources. The present invention can make a battery dominant as a DC supply source, not just as a battery backup. Furthermore, a person of ordinary skill reading Drinkwater would focus on other novel items of this invention, namely the energy booster 26 and the logic 24, not the old art of a backup battery 14.

Yamanaka (U.S. Patent No. 4,789,790) just changes one DC voltage to another voltage. The timer circuit is the main element of Yamanaka '790. It is not a "rectifier

battery/DC-DC converter" (such as an uninterruptible power supply). Yamanaka '790 is not voltage regulated. It has no power sharing, and no voltage regulated control.

The main inventive element of Yamanaka is a timer circuit 103, not the rectifier/battery/DC-DC converter cited by Examiner (which are also elements common to any uninterruptible power supply as used to back up PC's).

Morita (U.S. Patent No. 4,677,311) just prevents overcharging of a battery in an electronic device. It is a sub component of an electronic circuit, not a major voltage regulated power source. Morita is mainly concerned with preventing over-discharging of backup battery during power-off state.

In contrast, in the present invention there is also called for, in independent claim 49, primary sources of AC and DC, a secondary source of DC, and a control system which controls supply side power sharing at a DC load side. The power controller produces voltage-regulated power directing the response of the alternative primary source to the load.

It is believed that, even if the references were combined as suggested by the Examiner, this combination would not be satisfied.

This language, which is taken from the specification, and the features of the present Claims, do not appear to be taught or suggested in any of the art of record.

The remaining claims all depend from independent claim 49, except for Claim 116.

Wilhelm
08/820,496

In connection therewith, the present invention uses a voltage regulation to support the ideal state-of-charge in a rechargeable battery, that is in parallel with, the voltage regulated primary source from the controller supporting maximum battery longevity. Therefore the device of the present invention provides for the battery by controlling voltage to the battery, until it is at its maintenance charge.

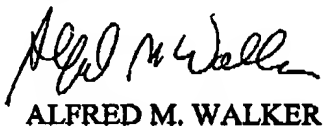
For example, the voltage regulator of the present invention is used to vary the voltage, effecting power sharing to the various DC sources. Each controller has its own rechargeable DC power source.

In view of the foregoing, it is believed that the claims in their present form are drawn to patentable subject matter and should be allowed.

The Examiner is requested to call the undersigned in the event that changes are required to obtain allowance of the application.

A favorable action is solicited.

Respectfully submitted,



ALFRED M. WALKER
Attorney for Applicant
Reg. No. 29,983
225 Old Country Road
Melville, NY 11747-2712
Tel 516-361-8737

Dated: July 8, 2003